SEMINOLE COUNTY GOVERNMENT
AGENDA MEMORANDUM

SUBJECT: Work Order #40 for CC-1075-06/TRJ - Public Works Minor Projects Continuing Construction Agreement (Construction Costs Less than $1,000,000)

DEPARTMENT: Administrative Services **DIVISION:** Purchasing and Contracts

AUTHORIZED BY: Frank Raymond **CONTACT:** Bob Hunter **EXT:** 7119

MOTION/RECOMMENDATION:
Notification of the issuance of Work Order #40 for CC-1075-06/TRJ in the amount of $200,450.00 to Southland Construction of Apopka, Florida, as an emergency procurement pursuant to Chapter 220 - Purchasing Code, Sec. 220.41 Emergency procurements.

County-wide Ray Hooper

BACKGROUND:

CC-1075-006/TRJ provides for all labor, materials, equipment, coordination and incidentals necessary to furnish continuing construction services for Public Works minor projects with an estimated construction cost of less than $1,000,000.00.

On December 12, 2006, the Board awarded Agreements to APEC, Inc. of Orlando, Florida; Central Florida Environmental of Longwood, Florida; AJC Construction of Orlando, Florida; JCB Construction of Orlando, Florida; and Southland Construction of Apopka, Florida. Each Work Order for construction services is awarded to the Contractor offering the lowest price that meets the County's schedule and when time is critical, the A + B method of evaluation may be utilized.

On May 14, 2009, the Public Works Department notified the Purchasing & Contracts Division of the need to repair a gravity wall that supports the sidewalk, handrail and storm sewer for an area along Markham Woods Road, where damage to the sidewalk and curb are already evident. The recent heavy rains in the affected area caused further erosion of the gravity wall and it was determined that this request fit the stated criteria for an emergency procurement pursuant to Chapter 220 - Purchasing Code, Sec. 220.41 Emergency procurements.

Work Order #40 will correct this problem to avoid further extensive damage that could occur affecting the roadway bed, and become a costlier repair. The backup documentation includes Work Order #40 and its associated exhibits as provided to the Contractor, Southland Construction. Exhibit "C" includes the bid quote for this project, and it contains Pay Items that are not in scope under CC-1075-06/TRJ, but that have been determined by the Public Works Department to be required for the successful completion of the project. Southland Construction was selected by the Public Works Department based on the Contractor's performance under CC-1075-06/TRJ, and its experience in roadway and structure construction.

Pursuant to Section 220.41, notification was made to the Chairman of the Board on May 19,

2009, and staff received the approval to proceed with the issuance of Work Order #40, and to obtain the Payment and Performance Bonds required for the project. On May 20, 2009, the Contractor was notified to commence these services due to the immediate need to prevent further damage under this emergency procurement. This Section requires staff to notify the Board at the next regularly scheduled Board meeting of this emergency procurement.

STAFF RECOMMENDATION:

This consent agenda is the notification of the issuance of Work Order #40 for CC-1075-06/TRJ in the amount of $200,450.00 to Southland Construction of Apopka, Florida, as an emergency procurement pursuant to Chapter 220 - Purchasing Code, Sec. 220.41 Emergency procurements.

ATTACHMENTS:

1. CC-1075-06 TRJ - WO40 (Southland)

Additionally Reviewed By:

☑ County Attorney Review (Ann Colby)

Board of County Commissioners
SEMINOLE COUNTY, FLORIDA

WORK ORDER

Work Order Number: **40**

Master Agreement No.: CC-1075-06/TRJ Dated: January 2, 2007
Master Agreement Title: Continuous Contracts for Public Works Minor Construction Projects
Project Title: **Markham Woods Road Gravity Wall Rehabilitation Project**

Contractor: Southland Construction
Address: 172 West Fourth Street
Apopka, Florida 32703

ATTACHMENTS TO THIS WORK ORDER:
[X] drawings/plans – Exhibit "B"
[X] scope of services/technical specifications – Exhibit "A"
[ ] single source form
[X] bid form (pay items) - Exhibit "C"

METHOD OF COMPENSATION:
[X] fixed fee basis
[ ] time basis-not-to-exceed
[ ] time basis-limitation of funds
[X] retainage shall be withheld

TIME FOR COMPLETION: **The services provided by the CONTRACTOR are in response to an emergency requirement of the COUNTY, and have commenced on May 19, 2009 notwithstanding the date of execution for this Work Order.** The Work to be provided by the CONTRACTOR shall be substantially completed as described in subsection 14.13 of the General Conditions, within **fifty (50) calendar days** after the date when the Contract Time begins to run as provided in subsection 2.2 of the General Conditions. The Work shall be finally completed, ready for Final Payment in accordance with subsection 14.9 of the General Conditions, within fifteen (15) calendar days after the actual date of Substantial Completion. **Liquidated Damages shall be assessed at $350.00 per day over contract time.** Failure to meet the completion time shall be grounds for Termination of both the Work Order and the Master Agreement for Default.

WORK ORDER AMOUNT: TWO HUNDRED THOUSAND FOUR HUNDRED FIFTY AND NO/100 DOLLARS ($200,450.00)

IN WITNESS WHEREOF, the parties hereto have made and executed this Work Order on this _____ day of _____, 20____, for the purposes stated herein.

(THIS SECTION TO BE COMPLETED BY THE COUNTY)

ATTEST:

Daniel T. Carr, Secretary
(CORPORATE SEAL)

Southland Construction

By: _____
Joseph L. Raucci, Vice-President
Date: _____

****

BOARD OF COUNTY COMMISSIONERS
SEMINOLE COUNTY, FLORIDA

ATTEST:

MARYANNE MORSE
Clerk to the Board of County Commissioners of
Seminole County, Florida

By: _____
Ray Hooper, Purchasing & Contracts Manager

Date: _____
As authorized for execution by Chapter 220 – Purchasing Code, Sec. 220.41 Emergency procurements.

OC #804583 **ON #23262**

WORK ORDER
TERMS AND CONDITIONS

a) Execution of this Work Order by the COUNTY shall serve as authorization for the CONTRACTOR to provide, for the stated project, services as set out in the Scope of Services attached as Exhibit "A" to the Master Agreement cited on the face of this Work Order and as further delineated in the attachments listed on this Work Order.

b) Term: This work order shall take effect on the date of its execution by the County and expires upon final delivery, inspection, acceptance and payment unless terminated earlier in accordance with the Termination provisions herein.

c) The CONTRACTOR shall provide said services pursuant to this Work Order, its Attachments, and the cited Master Agreement (as amended, if applicable) which is incorporated herein by reference as if it had been set out in its entirety.

d) Whenever the Work Order conflicts with the cited Master Agreement, the Master Agreement shall prevail.

e) CONTRACT PRICE:

(i) COUNTY shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents on the basis of the Total Bid (Original Contract Price). The CONTRACTOR's total compensation is DOLLAR ($) subject only to increases or decreases made in strict conformance with the Contract Documents.

(ii) CONTRACTOR agrees to accept the Contract Price as full compensation for doing all Work, furnishing all Materials, and performing all Work embraced in the Work Order Documents; for all loss or damage arising out of performance of the Work and from the action of the elements or from any unforeseen or unknown difficulties or obstructions which may arise or be encountered in the prosecution of the Work until the Final Acceptance; and for all risks of every description connected with the Work.

(iii) The CONTRACTOR acknowledges that CONTRACTOR studied, considered, and included in CONTRACTOR's Total Bid (Work Order Price) all costs of any nature relating to:

(1) performance of the Work under Central Florida weather conditions;

(2) applicable law licensing, and permitting requirements;

(3) the Project site conditions, including but not limited to, subsurface site conditions;

(4) the terms and conditions of the Contract Documents, including, but not limited to, the indemnification and no damage for delay provisions of the Contract Documents.

(iv) The CONTRACTOR acknowledges that performance of the Work will involve significant Work adjacent to, above, and in close proximity to Underground Facilities including utilities which will require the support of active utilities, as well as, the scheduling and sequencing of utility installations, and relocations (temporary and permanent) by CONTRACTOR.

(1) In addition to the acknowledgements previously made, the CONTRACTOR acknowledges that the CONTRACTOR's own study of Underground Facilities, utilities in their present, relocated (temporary and permanent) and proposed locations, and conflicts relating to utilities and Underground Facilities.

(2) The CONTRACTOR acknowledges that CONTRACTOR's Total Bid (Work Order Price) considered and included all of CONTRACTOR's costs relating to CONTRACTOR's responsibilities to coordinate and sequence the Work with the work of the COUNTY and its own forces, the work of other utility contractors and the work of others at the Project site.

f) PAYMENT PROCEDURES.

(i) CONTRACTOR shall submit applications for payment in accordance with Section 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

(ii) Progress Payments. COUNTY shall make progress payments on the basis of CONTRACTOR's applications for payment as recommended by ENGINEER, in with Section 14 of the General Conditions.

(iii) Final Payment. Upon Final Completion and acceptance of the Work in accordance with subsection 14.9.1 of the General Conditions, COUNTY shall pay the remainder of the Contract Price as provided in subsection 14.9.1.

g) ADDITIONAL RETAINAGE FOR FAILURE TO MAINTAIN PROGRESS ON THE WORK.

(i) Retainage under the Contract Documents is held as collateral security to secure completion of the Work.

(ii) In the event that CONTRACTOR fails to physically mobilize to the Work required by Section 6.19 of the General Conditions, then the COUNTY may withhold retainage to secure completion of the Work in an amount equal to the product of the number of Days after the 31st Day following the Date of Commencement of Contract Time liquidated damage amount for Substantial Completion set forth in Section 9 of this agreement. The additional retainage shall be withheld from the initial and each subsequent Progress Payment. The additional retainage held under this subsection shall be released to CONTRACTOR in the next Progress Payment following the ENGINEER's approval of a supplementary Progress Schedule demonstrating that the requisite progress will be regained and maintained as required by Section 6.19.2 of the General Conditions.

(iii) COUNTY may withhold additional retainage in anticipation of liquidated damages equal to the product of the number of Days after the scheduled Contract Time (Substantial Completion or Final Completion) and the amount of liquidated damages set forth in this Agreement if CONTRACTOR is behind schedule and it is anticipated by COUNTY that the Work will not be completed within the Contract Time. The additional retainage, under this subsection, may at the COUNTY's discretion be withheld from subsequent Progress payments. Any additional retainage held under this subsection shall be released to CONTRACTOR in the next Progress Payment following the Project Manager's approval of a supplemental Progress Schedule demonstrating that the requisite progress will be regained and maintained as required by Sections 6.19.2 of the General Conditions.

h) LIQUIDATED DAMAGES.

(i) The COUNTY and CONTRACTOR recognize that time is essential to the performance of this Agreement and CONTRACTOR recognizes that the COUNTY and its traveling public will suffer financial loss if the Work is not substantially completed as described in subsection 14.13 of the General Conditions and within the time specified in this Agreement, plus any extensions thereof allowed in accordance with Section 12 of the General Conditions. The parties also recognize the delays, expense and difficulties involved in proving in a legal or alternative dispute resolution proceeding the damages resulting from inconvenience to the traveling public including traffic loading, intersection operations, costs for time, costs of fuel and costs for some environmental impacts (excluding actual delay damages which may include, but are not limited to, engineering fees and inspection costs) suffered by the COUNTY if the Work is not competed on time. Accordingly, CONTRACTOR and CONTRACTOR's Surety agree to pay COUNTY as liquidated damages, and not as a penalty, **three hundred and fifty dollars ($350.00)** per Day for each Day CONTRACTOR exceeds the Contract Time for Substantial Completion until the Work is Substantially Complete. It is agreed that if this Work in not Finally Completed in accordance with the Contract Documents, the CONTRACTOR shall pay the COUNTY as liquidated damages for delay, and not as a penalty, one-fourth (1/4) of the rate set forth above.

(ii) The liquidated damages provided in this Section are intended to apply even if CONTRACTOR is terminated, in default, or if the CONTRACTOR has abandoned the Work.

Markham Woods Wall Rehabilitation and Repair.

The purpose of this project is to repair the gravity wall at the first curve south of E E Williamson Rd on the West side of the road. Upon completion of the work, engineering staff noticed a separation between the wall and the sidewalk joint is increasing in size. After monitoring for a few months it was determined that there is a problem with the wall. The design consultant identified that some deep muck pockets exists under the wall which caused the settlement along with a drainage issue in one of the structures.

This project will complete an emergency repair to correct the damage and eliminate the possibilities of road failure.

ENVIRONMENTAL CONSULTING
GEOTECHNICAL ENGINEERING
MATERIALS TESTING
THRESHOLD INSPECTION
DRILLING SERVICES

NODARSE
& ASSOCIATES, INC.

April 7, 2009
Project No. 01-05-0250-119C

Mr. Antoine Khoury
Seminole County Government
Department of Public Works
520 West Lake Mary Boulevard, Suite 200
Sanford, Florida 32773-7424

Supplemental Letter to Report of Additional Subsurface Exploration
and Geotechnical Engineering Evaluation
Markham Woods Road Gravity Wall Evaluation – Phase I
Seminole County, Florida

Dear Mr. Khoury:

Nodarse & Associates, Inc. (N&A) is pleased to present this supplemental letter for the above-referenced project. **N&A** previously submitted a report of additional subsurface exploration and geotechnical engineering evaluation dated February 5, 2009. It is our understanding that the following remedial alternative was selected in order to stabilize the existing gravity wall:

1. Installation of additional helical piles to provide additional vertical support and reduce potential settlement.
2. Installation of grout anchors or lateral helical anchors to provide lateral support and reduce rotational movement.
3. Restoring any soils that have eroded and created a void below and behind the gravity wall by using "flowable" fill (or similar material) and backfilling, respectively.
4. To minimize future erosion in front of the wall, filter fabric should be used along with riprap to protect the slope in front of the wall.

This supplemental letter presents the results of our evaluation regarding the selected remedial alternative.

The area of concern for the subject gravity wall is located along the west side of Markham Woods Road from about Station 556+00 to 558+50. The area of concern is located at the north end section of the existing gravity wall beginning at Station 546+60 and ending at Station 558+50.

Horizontal support: For horizontal support of the existing gravity wall, and to minimize further outward and rotational movement of the wall, grouted anchors or lateral helical anchors are proposed. The anchors are recommended to be installed along the area of concern for the gravity wall, from Station 556+00 to 558+50. The grouted/helical anchors should be constructed in accordance with Section 451 of the Standards Specifications, and considering the following:

- The minimum anchor capacity should be 1.5 kips/foot of wall (12 kips at 8 feet spacing or 15 kips at 10 feet spacing, etc.).
- The minimum un-bonded length of the anchor is 10 feet.
- The bonded length of the grout anchor should be determined such that the friction coefficient between the grout and soil does not exceed (2/3)*(tanϕ) or 0.35.
- If helical anchors are considered, correlation between load capacity and torque should be established from a "pull out" test, and used to verify capacities of other anchors.
- Anchor to be installed at an angle as to avoid any existing utilities below the sidewalk and minimize disturbance to adjacent roadway/base. Anchor angles as low as 8° to 10° (below horizontal) are acceptable.
- Sequence anchor installation to start at the south end of the gravity wall and work to the north.
- A minimum of two (2) anchors to be field tested to a minimum of twice the design load. The testing should occur to the first two (2) anchors installed.

Vertical Support: It is our understanding that helical piles were previously installed for the subject wall in order to stop vertical movement (settlement) of the subject wall. Helical piles were previously installed along the subject gravity wall from about Station 556+10 to 557+60, at 10 feet center-to-center spacing. It is recommended, to provide additional vertical support, additional helical piles should be installed between the existing helical piles so that the resulting spacing is 5 feet center-to-center; as well as along the remaining area of concern of the gravity wall from about Station 557+60 to 558+50 at 5 feet center-to-center spacing. The helical pile length, pipe diameter, and number of helix should be selected by the Contractor in order to achieve an allowable compression load of 10 kips.

The helical pile installation should be sequenced so as to start at the south end of the gravity wall and work to the north. A minimum of one (1) helical pile should be load tested in the field to twice the design load. The helical piles should also extend to a depth below the buried organic layer (as indicated on the soil boring profiles presented in our report dated February 5, 2009).

Fill Placement: Areas along the subject gravity wall between Station 556+00 to 558+50 were observed to have eroded soils below, behind and in front of the gravity wall possibly due to water flow from the exfiltration trench located behind the gravity wall towards the wetland.

Any soils that have eroded behind the gravity wall should be backfilled with inorganic, non-plastic, granular soil (clean sands). The fill should be placed in level lifts not to exceed 8 inches, and compacted to a minimum of 95 percent of the soil's modified Proctor maximum dry density as determined by ASTM Specification D-1557.

For the voids below the gravity wall, it is recommended to replace the eroded soils with "flowable" fill or similar material. The flowable fill (or similar) should be placed by chute or pumping. A temporary form should be used to confine the flowable fill within the designated space. The flowable fill (or similar) should be placed without vibration or other means of compaction; and should not be placed during inclement weather. The fill should be left undisturbed until the material obtains a strength of 35 psi penetration resistance as measured using a hand held penetrometer to measure the penetration resistance of the hardened flowable fill.

The backfilled soils behind the gravity wall should be placed prior to filling any voids below the gravity wall.

Also, the fill in front of the wall appeared to have eroded away. New fill placed in front of the wall in order to restore the original geometry should be protected with filter fabric as well as placement of riprap along the face of the slope. This will minimize future erosion that may result from water seepage from the stormwater system to the wetland. The filter fabric should be installed in accordance with Section 514 of the Standard Specifications. The filter fabric should be Type D-2 (per Index No. 199 of the Design Standards) with an AOS (sieve no.) of 40.

The riprap should be constructed in accordance with Section 530 of the Standard Specifications, with the following modifications:

- Minimum blanket thickness of 12 inches.
- Minimum bedding stone thickness of 6 inches.

As previously mentioned, the subject gravity wall is located along the west side of Markham Woods Road in Seminole County, Florida. The subject gravity wall is located adjacent to an existing wetland and thus, there are work space restrictions on the west side of the wall. Due to this, installation of the grouted or helical anchors and the helical auger piles will need to be performed from the top of the wall. Based on conversations with local Specialty Contractors who can perform the above-referenced installation, the proposed installation can be performed from the top of wall with readily available equipment.

N&A appreciates the opportunity to be of service to you on this project. If you should have any questions concerning the contents of this report, or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,

NODARSE & ASSOCIATES, INC.

4/10/07

Elias N. Jammal, P.E.
Senior Geotechnical Engineer
FL Registration No. 60126

Amr Sallam, Ph.D., P.E.
Senior Geotechnical Engineer, AVP
FL Registration No. 67578

cc: Mr. Matthew A. Taylor, P.E. – PBS&J
Mr. Kenneth T. Zagers, P.E. – PBS&J

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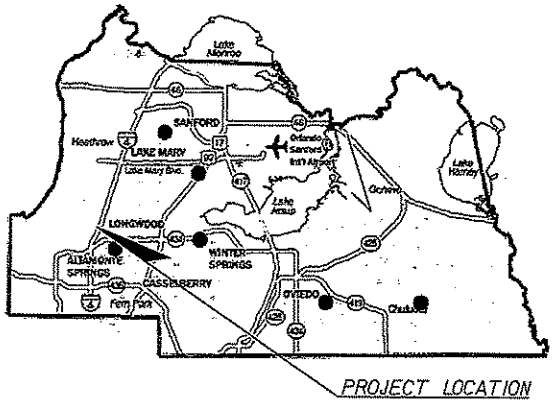
THIS CONTRACT PLAN SET INCLUDES:

CONSTRUCTION PLANS

SEMINOLE COUNTY, FLORIDA
ENGINEERING DIVISION
CONTRACT PLANS

PUBLIC WORKS DIRECTOR
W. GARY JOHNSON, P.E.

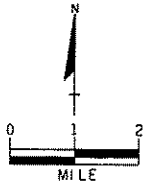
COUNTY ENGINEER
JERRY McCOLLUM, P.E.

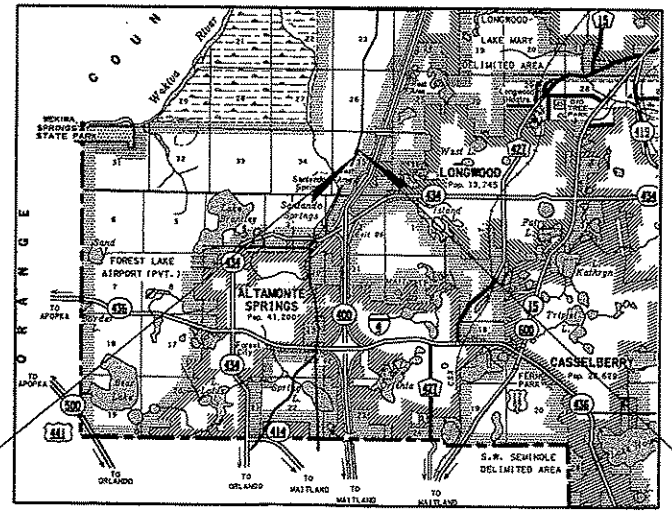


INDEX OF
CONSTRUCTION PLANS

MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION

FROM STA. 556+00.00 TO STA. 558+50.00





BEGIN PROJECT
STA 556+00.00

END PROJECT
STA 558+50.00

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS DATED JANUARY 2008, AND
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED 2007,
AS AMENDED BY CONTRACT DOCUMENTS.

KEY SHEET REVISIONS	
DATE	DESCRIPTION

SHOP DRAWINGS
TO BE SUBMITTED TO:

MATTHEW A. TAYLOR, P.E.
482 SOUTH KELLER ROAD
ORLANDO, FLORIDA 32810
(407)647-1275

PLANS PREPARED BY:

PBS&J

482 SOUTH KELLER ROAD
ORLANDO, FLORIDA 32810
(407)647-1275

SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
520 WEST LAKE MARY BOULEVARD SUITE 200
SANFORD FLORIDA 32773-7424
TEL. 407-665-5674
FAX. 407-665-5772

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

CIP No: 192017
SEMINOLE COUNTY PROJECT MANAGER: ANTOINE KHOURY, P.E.

ENGINEER OF RECORD: Matthew A. Taylor

P.E. NO.: 56965

5-5-09

FISCAL YEAR	SHEET NO.
09	1

SUMMARY OF PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	
			PLAN	FINAL
101-1	MOBILIZATION	LS	1	
102-1	MAINTENANCE OF TRAFFIC	LS	1	
104-12	STAKED TURBIDITY BARRIER	LF	246	
110-1-1	CLEARING AND GRUBBING	LS	1	
120-9	EARTHWORK	LS	1	
121-70	FLOWABLE FILL	LS	1	
425-2-73	MANHOLE (J-7) (PARTIAL)	EA	1	
430-94-1	DESILT PIPE (0-24")	LF	100	
430-94-2	DESILT PIPE (25"-36")	LF	305	
515-2-102	RESET HANDRAIL	LF	246	
522-1	SIDEWALK CONCRETE, 4" THICK	SY	262	
530-74	BEDDING STONE	TN	42.4	
575-1-1	SODDING (BAHIA) (CONTINGENCY)	SY	100	
451-70	PRESTRESSED SOIL ANCHOR	EA	26	
451-70-1	PRESTRESSED SOIL ANCHOR (PERFORMANCE TEST)	EA	2	
451-70-2	PRESTRESSED SOIL ANCHOR (CREEP TEST)	EA	1	
455-39	MINIPILE FOUNDATION SYSTEM (F&I) (HELIX ANCHOR)	EA	34	
455-119-101	LOAD TEST-STATIC	EA	2	

PAY ITEM NOTES

101-1	INCLUDES THE COST OF ALL ITEMS, NOT LISTED SEPARATELY, NEEDED FOR EROSION CONTROL
102-1	INCLUDES ALL MOT ITEMS (SIGNS, BARRICADES, ATTENUATORS, MARKINGS, ETC.) FOR THE MAINTENANCE OF VEHICULAR AND PEDESTRIAN TRAFFIC. ALSO INCLUDES RESTORATION OF PERMANENT PAVEMENT MARKINGS AFFECTED BY TEMPORARY MOT OPERATIONS OR CONSTRUCTION ACTIVITIES.
110-1-1	INCLUDES, BUT IS NOT LIMITED TO, THE COST OF REMOVAL AND DISPOSAL OF CONCRETE SIDEWALK, CONCRETE CURBS AND GUTTERS, DRIVEWAYS, STRUCTURES, VARIOUS TYPES OF FENCES, AND TRIMMING OF TREES AND SHRUBS AS REQUIRED TO CONSTRUCT THE PROJECT.
120-09	INCLUDES ALL EARTHWORK MATERIAL AND OPERATIONS NECESSARY TO CONSTRUCT PROJECT, SPECIFICALLY FILLING VOIDS AND RECOMPACTING EXISTING SOIL ADJACENT TO THE WALL AND/OR BELOW THE SIDEWALK; AND EXCAVATION OF SOIL ON THE LOW SIDE OF THE WALL FOR PLACEMENT OF BEDDING STONE
425-2-73	INCLUDES THE COST OF APPROXIMATELY 5 LF OF TYPE F CURB AND GUTTER PER DRAINAGE DETAILS.
430-94-X	INCLUDES COST OF REMOVAL OF DEBRIS AND DESILTING OF ATTACHED INLETS AND STRUCTURES
455-39	INCLUDES COST OF LABOR, EQUIPMENT, MATERIALS REQUIRED FOR FURNISHING AND INSTALLING GALVANIZED HELIX ANCHORS AND UNDERPINNING BRACKET.
515-2-102	INCLUDES REMOVAL OF EXISTING HANDRAIL, INSTALLATION OF TEMPORARY CONSTRUCTION FENCING (AS NECESSARY) AND RESETTING OF EXISTING HANDRAIL. THE RESET HANDRAIL SHOULD BE PLUMB AND HAVE A SMOOTH VERTICAL AND HORIZONTAL ALIGNMENT CONSISTANT WITH WALL AND BACK OF SIDEWALK. THE RESET HANDRAIL SHALL BE RESTORED TO PRECONSTRUCTION CONDITION, INCLUDING REPAIR TO ANY DAMAGE TO THE FINISH OR PAINT.
522-1	INCLUDES 6" SIDEWALK DEPTH AT DRAINAGE STRUCTURE S-201.
530-74	INCLUDES COST OF FILTER FABRIC.
575-1-1	INCLUDES FURNISHING OF SOD, FERTILIZER, AND WATER FOR ESTABLISHMENT OF PERMANENT SODDING. TO BE USED AS DIRECTED BY THE ENGINEER.

SUMMARY OF DESILTING EXISTING PIPE

LOCATION STA. TO STA.	PIPE SIZE	EXISTING PIPE LENGTH (LF)			
		0"-24"		25"-36"	
		PLAN	FINAL	PLAN	FINAL
556+65 RT TO 556+65 LT	18"	39			
556+65 LT TO 557+85 LT	30"			115	
557+85 RT TO 557+85 LT	24"	61			
557+85 LT TO 559+79 LT	30"			190	
GRAND TOTAL:		100		305	

EXHIBIT "B"

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

PBSJ
Certificate of Authorization No. 24

Engineer of Record: Matthew A. Taylor P.E. #: 56385
682 South Keller Road Orlando, FL 32810 (407) 647-7275

SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION

SUMMARY OF QUANTITIES & PAY ITEMS

SHEET NO. 2

GENERAL NOTES

1. GRADES SHOWN ARE FINISHED GRADES.
2. B.M. DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD-'29)
3. EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED.
4. IT IS THE RESPONSIBILITY OF THE EXCAVATOR TO COMPLY WITH THE CURRENT STATE OF FLORIDA UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY ACT AND/OR RELATED STATE LAW. THE FOLLOWING INFORMATION IS BEING PROVIDED BY SEMINOLE COUNTY IN AN EFFORT TO ASSIST THE EXCAVATOR BY LISTING UTILITIES THAT MAY PROVIDE SERVICE IN THE APPROXIMATE AREA OF PROPOSED CONSTRUCTION. THE EXCAVATOR SHOULD ASSUME OTHER UTILITIES THAT ARE NOT LISTED MAY PROVIDE SERVICE IN THE APPROXIMATE AREA OF PROPOSED CONSTRUCTION.

   UTILITY OWNERS:

   EMBARQ
   952 1ST STREET
   ALTAMONTE SPRINGS, FL 32701
   (407) 830-3458
   DOUG WHITAKER

   SANLANDO UTILITIES CORP.
   2335 SANDERS ROAD
   NORTHBROOK, IL 60062
   (407) 971-5659
   DAVID PRADO

   FLORIDA GAS TRANSMISSION
   CONTACT: JOE SANCHEZ
   (407) 838-7166

   FLORIDA POWER & LIGHT FIBERNET
   9250 W. FLAGLER ST, MAIL STOP FH/60
   MIAMI, FL 33174
   (305) 552-2024
   ISRAEL LOPEZ

   BRIGHT HOUSE NETWORKS
   844 MAGUIRE ROAD
   OCOEE, FLORIDA 34761-2916
   (407) 532-8509
   MARVIN USRY

   COMCAST COMM. - CATV
   CONTACT: DANNY FERGUSON
   (352) 728-8757 EXT. 155

   ATT/TRANSMISSION
   2315 SALEM RD., 1ST FLOOR-AID
   CONYERS, GA 30013
   (407) 294-3005
   RICHARD KALETA

   PROGRESS ENERGY
   CONTACT: EVA REYES
   (407) 359-4413

   FLORIDA PUBLIC UTILITIES
   CONTACT: BRYAN GONGRE
   (407) 869-8588 EXT. 225

   SEMINOLE COUNTY TRAFFIC ENGINEERING
   140 BUSH LOOP
   SANFORD, FL 32773
   (407) 323-2500
   ROBERT LOYER, P.E.

   ATT / DISTRIBUTION
   146 ORANGE PL.
   MAITLAND, FL 32751
   (407) 539-0644
   PAM COTE

5. ANY NGVD-'29 MONUMENT WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHOULD NOTIFY:

   GEODETIC INFORMATION CENTER
   ATTN: MARK MAINTENANCE SECTION
   N/CG-162
   6001 EXECUTIVE BOULEVARD
   ROCKVILLE, MARYLAND 20852
   TELEPHONE: (301)443-8319

6. PERMANENT TURNOUTS AND DRIVEWAY CONNECTIONS TO PRIVATE PROPERTY THAT LIE OUTSIDE THE LIMITS OF RIGHT-OF-WAY AND WHERE ACCESS RIGHTS HAVE NOT BEEN ACQUIRED SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TURNOUT DETAILS AND STATE STANDARD SPECIFICATIONS REFERENCED ON THE KEY SHEET OF THESE PLANS. THE COUNTY OR THE COUNTY'S CONTRACTOR SHALL NOT ISOLATE ADJACENT AND/OR REMAINDER PROPERTY UNLESS ACCESS RIGHTS ARE ACQUIRED. ACCESS SHALL BE PROVIDED TO SUCH PROPERTY WHENEVER CONSTRUCTION INTERFERES WITH THE EXISTING MEANS OF ACCESS.
7. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE COUNTY LOCATION SURVEYOR WITHOUT DELAY BY TELEPHONE.
8. DURING CONSTRUCTION, CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF THE FDOT DESIGN STANDARDS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
9. TEMPORARY DRAINAGE SHALL BE PROVIDED DURING CONSTRUCTION TO ELIMINATE ANY FLOODING OF PRIVATE PROPERTY.
10. THE UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE LOCATION ONLY AND ARE INTENDED ONLY TO SHOW THE UTILITIES LIKELY TO BE ENCOUNTERED DURING CONSTRUCTION. THE INFORMATION WAS GATHERED FROM RECORDS AND PLANS PRIOR TO THE CONSTRUCTION OF THE WALL AND THEY MAY HAVE BEEN ADJUSTED AT THAT TIME. PRIOR TO CONSTRUCTION, ALL EXISTING UTILITIES, PUBLIC OR PRIVATE, SHALL BE LOCATED BY THE CONTRACTOR IN AREAS OF CONSTRUCTION AND OWNERS OF SAID MENTIONED UTILITIES NOTIFIED PRIOR TO COMMENCING WORK.
11. ALL EXISTING AND PROPOSED STORM SEWER LINES AND INLETS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE CLEANED OF DEBRIS AND ERODED MATERIALS AT LAST STAGES OF CONSTRUCTION. LIMITS OF PIPE DESILTING SHALL BE TO THE NEAREST STRUCTURE BEYOND THE PROJECT LIMITS.
12. ALL SURVEY CORNERS INDICATED ON THE PLANS SHALL BE REFERENCED AND CERTIFIED BY A REGISTERED PROFESSIONAL LAND SURVEYOR PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL CORNERS DESTROYED OR OBLITERATED BY CONSTRUCTION SHALL BE RESET AND SO CERTIFIED BY THE LAND SURVEYOR PRIOR TO COMPLETION OF THE PROJECT. CERTIFIED SKETCHES SHALL BE SUBMITTED TO:

    SEMINOLE COUNTY
    ENGINEERING DIVISION
    SURVEY SECTION
    520 W. LAKE MARY BLVD., SUITE 200
    SANFORD, FL. 32773

13. ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THE CONSTRUCTION WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING PRE-CONSTRUCTION CONDITION, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. COST TO BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION TO BE ALLOWED.
14. ANY MAIL BOX WITHIN THE LIMITS OF CONSTRUCTION IS TO BE TAKEN DOWN AND RESET IN ACCORDANCE WITH POSTAL REQUIREMENTS AND STANDARD INDEX NO. 532 BY THE CONTRACTOR. COST TO BE INCLUDED UNDER CLEARING AND GRUBBING.
15. ALL MATERIALS, CONSTRUCTION, INSPECTIONS AND TESTS SHALL, AS A MINIMUM, CONFORM TO FDOT STANDARD SPECIFICATIONS DATED 2007, SUPPLEMENTS AND TO SPECIAL PROVISIONS FOR THIS PROJECT.
16. ALL SHOP DRAWINGS MUST BE APPROVED BY SEMINOLE COUNTY PRIOR TO FABRICATION.
17. UNSUITABLE MATERIALS SHALL BE REMOVED FROM CONSTRUCTION AREAS AND BACKFILLED WITH SUITABLE MATERIALS. UNSUITABLE MATERIALS TO BE DISPOSED OF AT CONTRACTOR'S EXPENSE AT LOCATIONS PROVIDED BY THE CONTRACTOR.
18. CONSTRUCTION SHALL INCLUDE REPLACING WITH MATCHING MATERIALS ALL DRIVEWAYS, WALKS, CURBS, ETC. THAT ARE DAMAGED OR REMOVED DUE TO CONSTRUCTION AND WORK SHALL BE COORDINATED WITH PROPERTY OWNERS.
19. CONSTRUCTION OR REPAIRS OF SANITARY SEWER AND WATER UTILITIES SHALL CONFORM TO "STANDARD CONSTRUCTION AND UTILITY SPECIFICATIONS". (ENVIRONMENTAL SERVICES DIVISIONS).
20. ANY DRAINAGE PROBLEMS, CREATED BY CONSTRUCTION OR EXISTING BEFORE CONSTRUCTION, THAT ARE NOT ALLEVIATED SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEERING DIVISION.
21. "INLET EL" FOR CURB INLETS REFERS TO THE EDGE OF PAVEMENT ELEVATION AS MEASURED AT THE CENTERLINE OF THE INLET.
22. ANY AREA OUTSIDE THE IMMEDIATE CONSTRUCTION AREA DISTURBED BY THE CONTRACTOR WILL BE SODDED AT THE CONTRACTOR'S EXPENSE.

MOT NOTES

23. VEHICULAR AND PEDESTRIAN TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH FDOT DESIGN STANDARDS, INDEX 600 SERIES, THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS A MINIMUM.
24. EXISTING TRAFFIC (ONE LANE IN EACH DIRECTION) ON MARKHAM WOODS ROAD SHALL BE MAINTAINED AT ALL TIMES. LANE CLOSURES SHALL BE PERMITTED ONLY DURING ACTIVE WORK PERIODS AND ONLY FROM 10:00 PM TO 6:00 AM.
25. TO COMPLY WITH INDEX 600 DROP-OFF CRITERIA, ALL TRENCHES OR DROP-OFFS WITHIN THE CLEAR ZONES NEED TO BE PROTECTED BY ONE OF THE FOLLOWING:
    A) REMAIN WITHIN AN ACTIVE WORK ZONE AND BE PROTECTED BY BARRICADES,
    B) BE BACKFILLED WITHIN 3" OF LEVEL (OR COMPACTED TO A 1:4 SLOPE USING BASE MATERIAL) BY THE END OF EACH WORK PERIOD TO REMOVE THE DROP-OFF HAZARD OR
    C) BE PROTECTED BY BARRIER WALL. SEE INDEX 600, PG 9/12 FOR DETAILS.

Matthew A. Taylor 56985

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

PBSJ
Certificate of Authorization No. 24

Engineer of Record: Matthew A. Taylor P.E. #: 56985
482 South Keller Road Orlando, FL 32810 (407) 647-7275

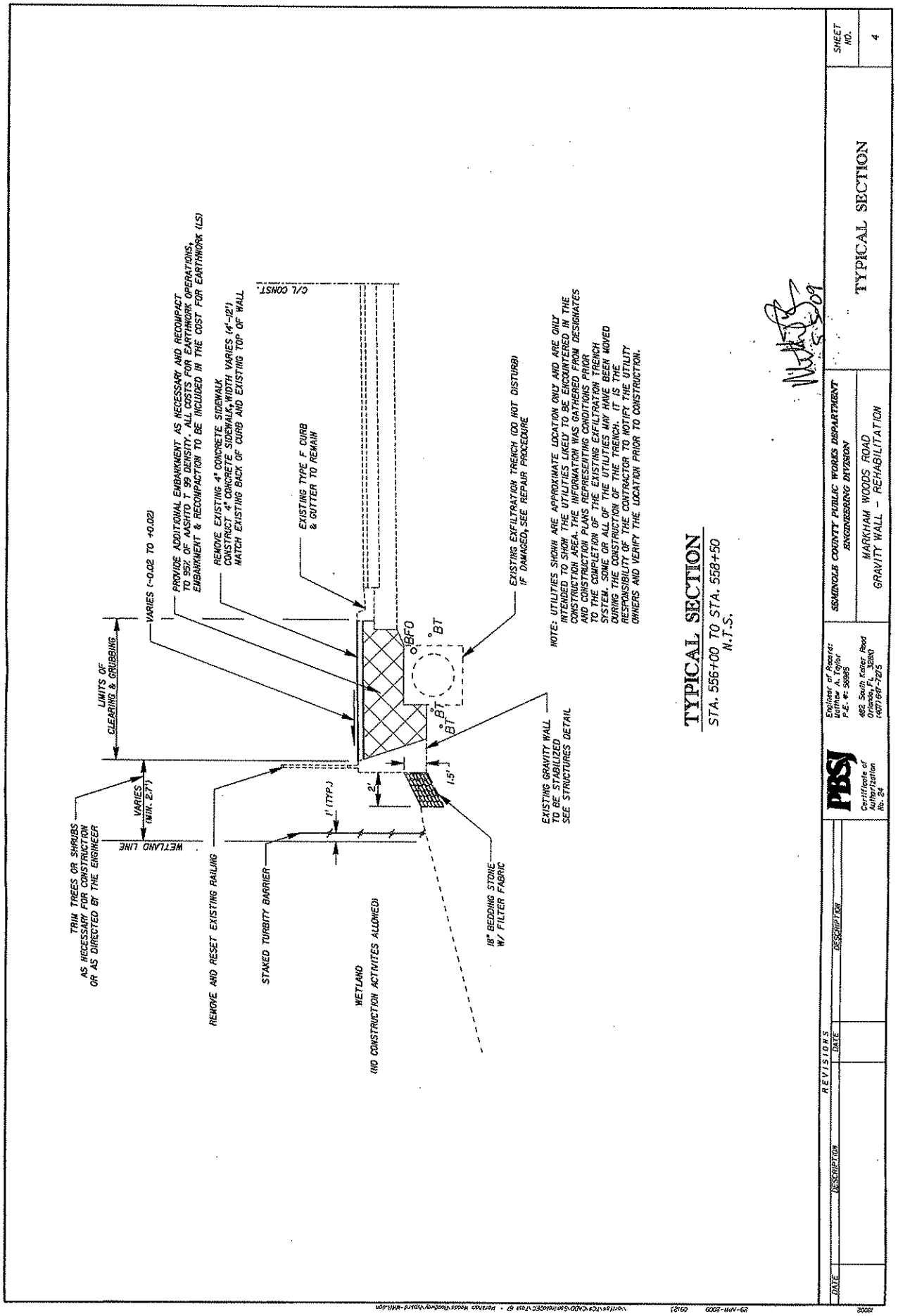
SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

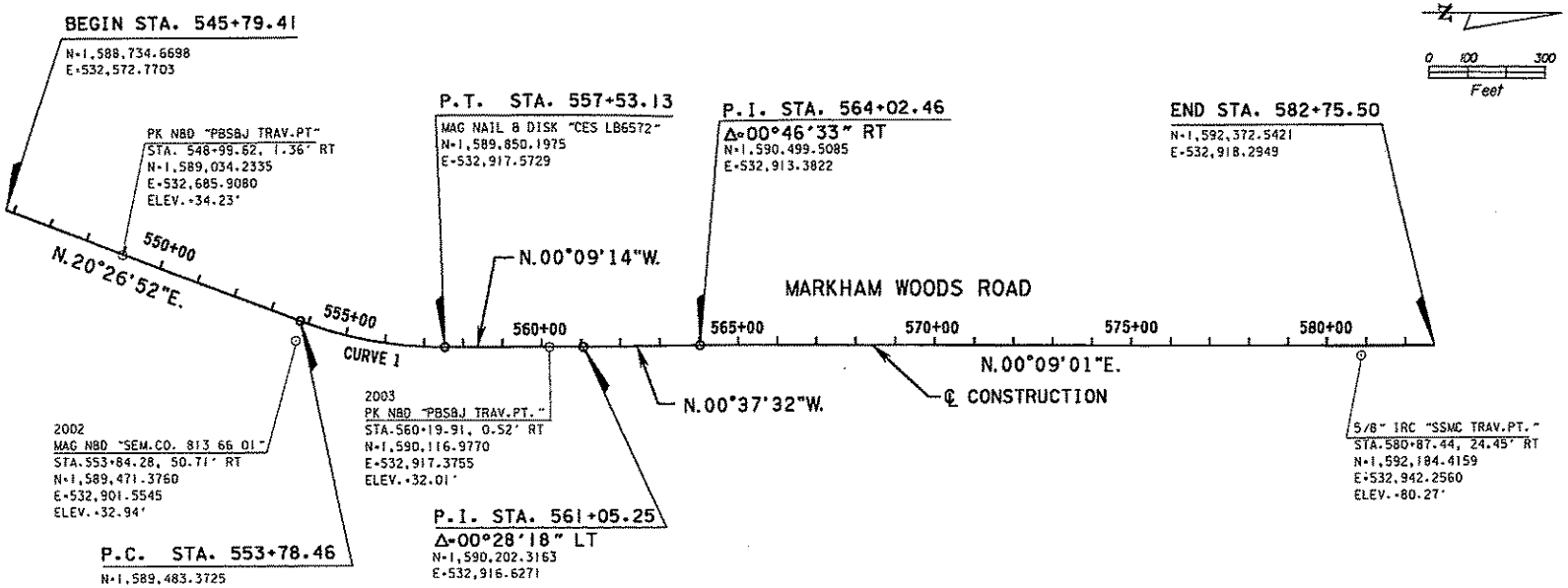
MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION

GENERAL NOTES

SHEET NO. 3

EXHIBIT "B"


TYPICAL SECTION
STA. 556+00 TO STA. 558+50
N.T.S.
TRIM TREES OR SHRUBS AS NECESSARY FOR CONSTRUCTION OR AS DIRECTED BY THE ENGINEER
VARIES (MIN. 2.7')
WETLAND LINE
REMOVE AND RESET EXISTING RAILING
STAKED TURBITY BARRIER
1' (TYP.)
WETLAND
(NO CONSTRUCTION ACTIVITIES ALLOWED)
2'
1.5'
EXISTING GRAVITY WALL TO BE STABILIZED SEE STRUCTURES DETAIL
18" BEDDING STONE W/ FILTER FABRIC
LIMITS OF CLEARING & GRUBBING
VARIES (-0.02 TO +0.02)
PROVIDE ADDITIONAL EMBANKMENT AS NECESSARY AND RECOMPACT TO 95% OF AASHTO T 99 DENSITY. ALL COSTS FOR EARTHWORK OPERATIONS, EMBANKMENT & RECOMPACTION TO BE INCLUDED IN THE COST FOR EARTHWORK (LS)
REMOVE EXISTING 4" CONCRETE SIDEWALK
CONSTRUCT 4" CONCRETE SIDEWALK, WIDTH VARIES (4'-12')
MATCH EXISTING BACK OF CURB AND EXISTING TOP OF WALL
C/L CONST.
EXISTING TYPE F CURB & GUTTER TO REMAIN
BFO
BT
BT
BT
EXISTING EXFILTRATION TRENCH (DO NOT DISTURB) IF DAMAGED, SEE REPAIR PROCEDURE
NOTE: UTILITIES SHOWN ARE APPROXIMATE LOCATION ONLY AND ARE ONLY INTENDED TO SHOW THE UTILITIES LIKELY TO BE ENCOUNTERED IN THE CONSTRUCTION AREA. THE INFORMATION WAS GATHERED FROM DESIGNATES AND CONSTRUCTION PLANS REPRESENTING CONDITIONS PRIOR TO THE COMPLETION OF THE EXISTING EXFILTRATION TRENCH SYSTEM. SOME OR ALL OF THE UTILITIES MAY HAVE BEEN MOVED DURING THE CONSTRUCTION OF THE TRENCH. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE UTILITY OWNERS AND VERIFY THE LOCATION PRIOR TO CONSTRUCTION.
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
PBSJ
Certificate of Authorization No. 24
Engineer of Record: Matthew A. Taylor P.E. #: 56985
482 South Keller Road Orlando, FL 32810 (407) 647-7275
SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION
TYPICAL SECTION
SHEET NO.
4
29-APR-2009
18008



LEGEND:

℄	= CENTERLINE
Δ	= CENTRAL ANGLE / DEFLECTION ANGLE
E	= EASTING
ELEV.	= ELEVATION
IRC	= IRON ROD AND CAP
L	= ARC LENGTH
LT	= LEFT
MAG	= MAGNETIC
N	= NORTHING
P.C.	= POINT OF CURVATURE
P.I.	= POINT OF INTERSECTION
PK	= PARKER KALON
P.T.	= POINT OF TANGENCY
R	= RADIUS
RT	= RIGHT
STA.	= STATION
T	= TANGENT LENGTH

CURVE 1
P.I. Sta. 555+67.84
N=1,589,660.8191
E=532,918.0815
Δ=20°36'06" (LT)
R=1,042.00'
L=374.67'
T=89.38'
P.C. STA. 553+78.46
P.T. STA. 557+53.13

NOTES:

1. THE BEARINGS SHOWN HEREON ARE BASED ON A LINE BETWEEN POINTS 2002 AND 2003, BEING N01°24'14"E, ASSUMED.
2. THE ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) BASED ON SEMINOLE COUNTY BENCHMARK 331780I, A RAILROAD SPIKE ON THE SOUTHEAST FACE OF A 12 INCH PALM TREE LOCATED +/- 30 FEET WEST OF MARKHAM WOODS ROAD AND +/- 30 FEET NORTH OF IBIS ROAD, ELEVATION IS 80.758 FT.
3. ATTENTION IS DIRECTED TO THE FACT THIS MAP MAY HAVE BEEN ALTERED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.
4. THIS CONSTRUCTION LAYOUT SURVEY WAS PREPARED IN CONFORMANCE WITH THE MINIMUM TECHNICAL STANDARDS AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 61G17-6, FLORIDA ADMINISTRATIVE CODE PURSUANT TO SECTION 472.027, FLORIDA STATUTES.
5. THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
6. SURVEY DATE: MARCH 19, 2009.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

PBSJ
Certificate of Authorization No. 24

Michael E. Burnett
PSM # 6166
482 South Keller Road
Orlando, FL 32810
(407) 647-7275

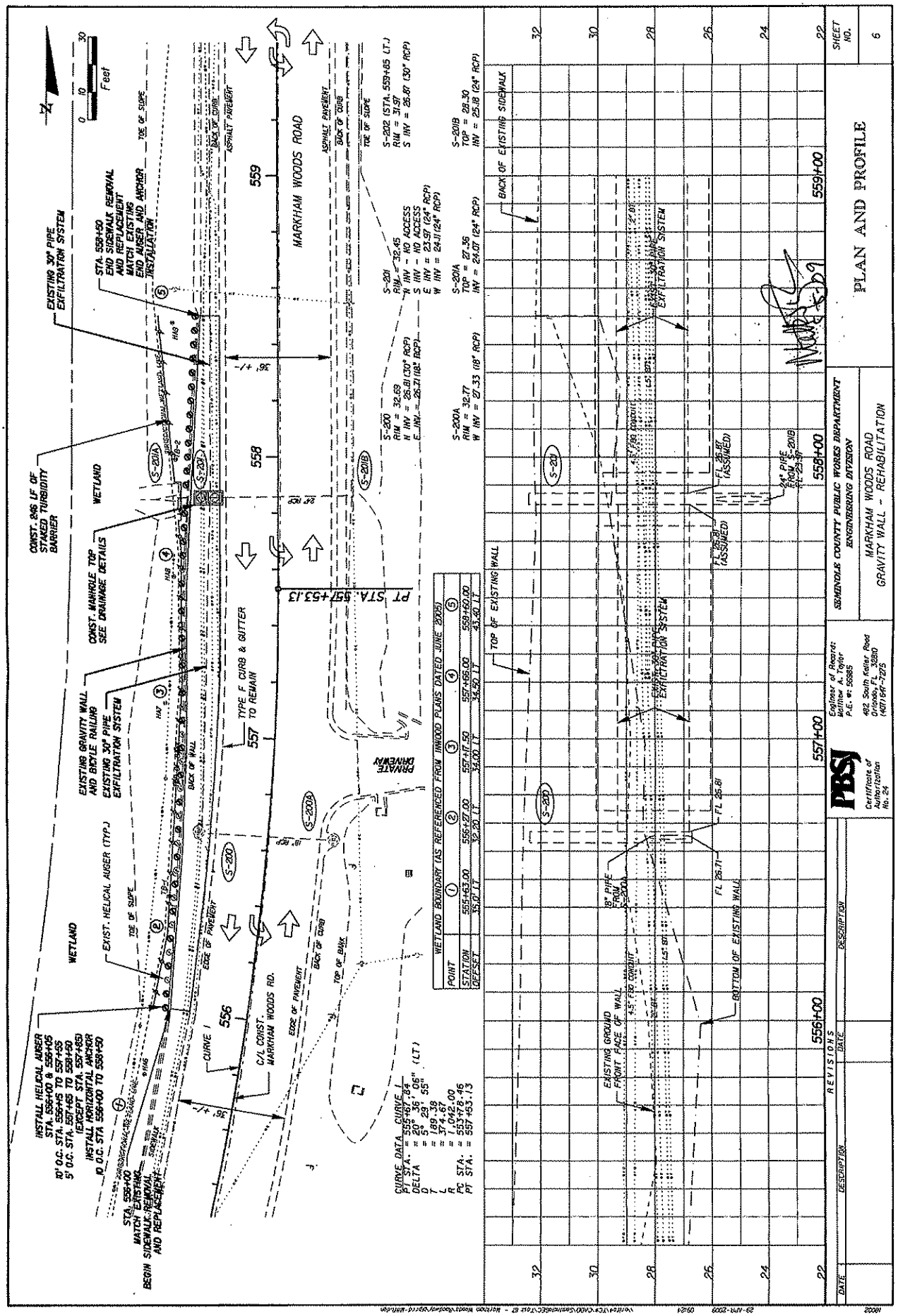
SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

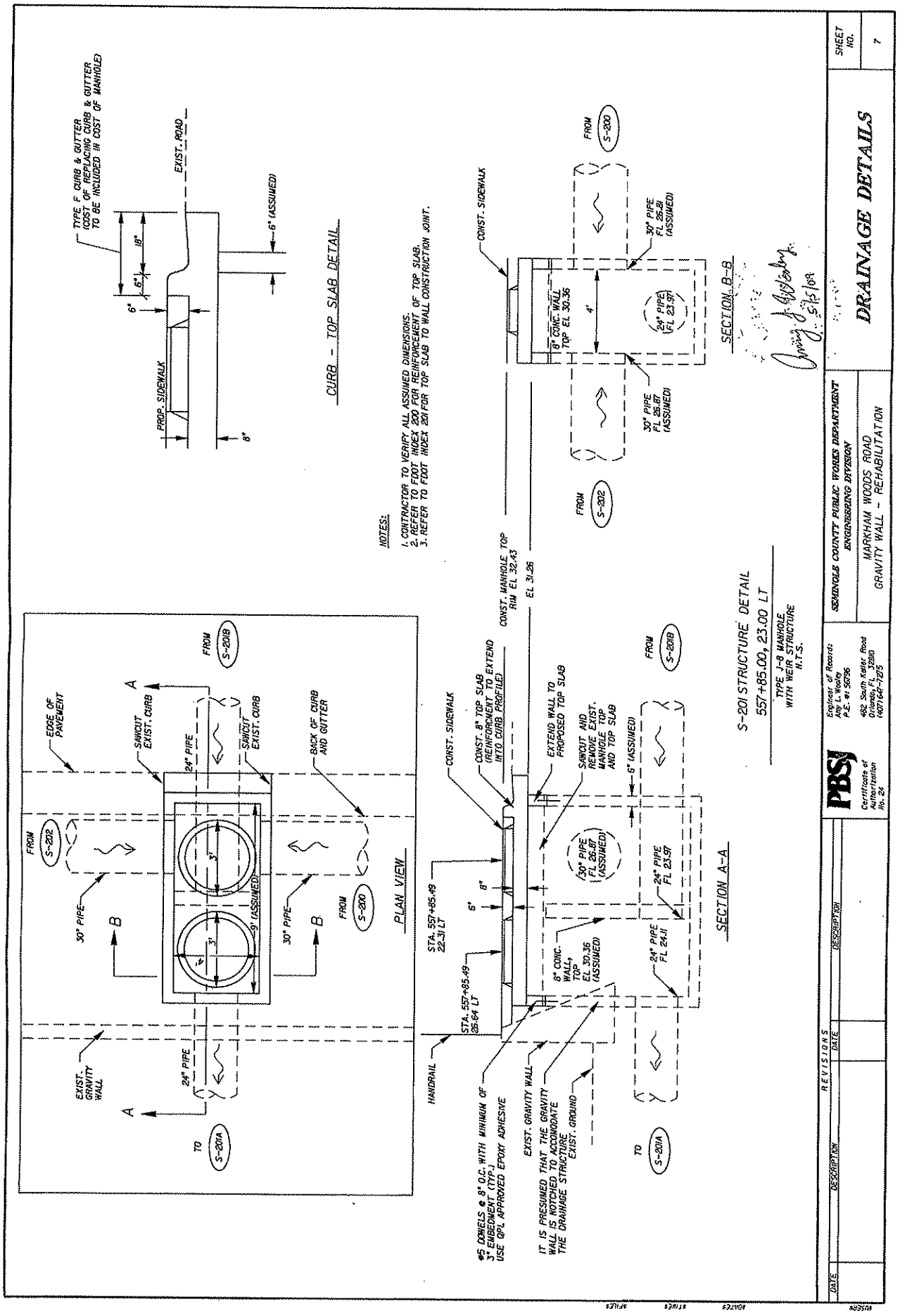
MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION

SURVEY CONTROL SHEET

SHEET NO. 5

EXHIBIT "B"


PLAN AND PROFILE
MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION
SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
PBS
Engineer of Record: Matthew A. Taylor P.E. #: 55385
402 South Keller Road Orlando, FL 32810 (407) 647-1275
Certificate of Authorization No. 24
REVISIONS
DATE
DESCRIPTION
SHEET NO.
6
MARKHAM WOODS ROAD
WETLAND
EXIST. HELICAL AUBER (TYP.)
EXISTING GRAVITY WALL AND BICYCLE RAILING
EXISTING 30" PIPE EXFILTRATION SYSTEM
CONST. MANHOLE TOP SEE DRAINAGE DETAILS
CONST. 946 LF OF STAKED TURBIDITY BARRIER
EXISTING 30" PIPE EXFILTRATION SYSTEM
STA. 559+50 END SIDEWALK REMOVAL AND REPLACEMENT MATCH EXISTING END AUGER AND ANCHOR INSTALLATION
INSTALL HELICAL AUGER STA. 556+00 & 556+05 10' O.C. STA. 556+15 TO 557+35 5' O.C. STA. 557+65 TO 558+50 (EXCEPT STA. 557+65) INSTALL HORIZONTAL ANCHOR 10 O.C. STA 556+00 TO 558+50
STA. 556+00 MATCH EXISTING BEGIN SIDEWALK REMOVAL AND REPLACEMENT
CURVE 1
C/L CONST. MARKHAM WOODS RD.
EDGE OF PAVEMENT
BACK OF CURB
TOP OF BANK
TOE OF SLOPE
TYPE F CURB & GUTTER TO REMAIN
PRIVATE DRIVEWAY
PT STA. 557+53.13
CURVE DATA - CURVE 1
PT STA. = 555+67.84
DELTA = 20° 36' 06" (LT)
D = 5° 29' 55"
T = 189.38
L = 374.67
R = 1,042.00
PC STA. = 553+78.46
PT STA. = 557+53.13
WETLAND BOUNDARY TAS REFERENCED FROM INWOOD PLANS DATED JUNE 2005
POINT ① ② ③ ④ ⑤
STATION 555+63.00 556+27.00 557+17.50 557+96.00 559+60.00
OFFSET 35.0' LT 32.20' LT 34.00' LT 34.50' LT 43.40' LT
S-200 RIM = 32.69 N INV = 26.81 (30" RCP) E INV = 26.71 (18" RCP)
S-200A RIM = 32.77 W INV = 27.33 (18" RCP)
S-201 RIM = 32.45 N INV = NO ACCESS S INV = NO ACCESS E INV = 23.97 (24" RCP) W INV = 24.11 (24" RCP)
S-201A TOP = 27.36 INV = 24.07 (24" RCP)
S-201B TOP = 28.30 INV = 25.18 (24" RCP)
S-202 (STA. 559+65 LT.) RIM = 31.97 S INV = 26.87 (30" RCP)
EXISTING GROUND
FRONT FACE OF WALL
1.5' FBO CONDUIT
TOP OF EXISTING WALL
BOTTOM OF EXISTING WALL
BACK OF EXISTING SIDEWALK
EXFILTRATION SYSTEM
18" PIPE FROM S-200A
24" PIPE FROM S-201B
FL 26.81 (ASSUMED)
FL 26.71
556+00
557+00
558+00
559+00
22
24
26
28
30
32


TYPE F CURB & GUTTER
(COST OF REPLACING CURB & GUTTER TO BE INCLUDED IN COST OF MANHOLE)
EXIST. ROAD
6" (ASSUMED)
PROP. SIDEWALK
CURB - TOP SLAB DETAIL
NOTES:
1. CONTRACTOR TO VERIFY ALL ASSUMED DIMENSIONS.
2. REFER TO FDOT INDEX 220 FOR REINFORCEMENT OF TOP SLAB.
3. REFER TO FDOT INDEX 291 FOR TOP SLAB TO WALL CONSTRUCTION JOINT.
EDGE OF PAVEMENT
SAWCUT EXIST. CURB
24" PIPE
BACK OF CURB AND GUTTER
FROM S-202
FROM S-201B
30" PIPE
5' (ASSUMED)
EXIST. GRAVITY WALL
TO S-201A
FROM S-200
PLAN VIEW
CONST. SIDEWALK
CONST. 8" TOP SLAB (REINFORCEMENT TO EXTEND INTO CURB PROFILE)
CONST. MANHOLE TOP RIM EL 32.43
EL 31.26
EXTEND WALL TO PROPOSED TOP SLAB
SAWCUT AND REMOVE EXIST. MANHOLE TOP AND TOP SLAB
6" (ASSUMED)
8" CONC. WALL TOP EL 30.36 (ASSUMED)
30" PIPE FL 26.87 (ASSUMED)
24" PIPE FL 23.97
24" PIPE FL 24.11
STA. 557+85.49 22.31 LT
STA. 557+85.49 25.64 LT
HANDRAIL
#5 DOWELS @ 8" O.C. WITH MINIMUM OF 3" EMBEDMENT (TYP.) USE DOT APPROVED EPOXY ADHESIVE
EXIST. GRAVITY WALL
IT IS PRESUMED THAT THE GRAVITY WALL IS NOTCHED TO ACCOMODATE THE DRAINAGE STRUCTURE
EXIST. GROUND
SECTION A-A
S-201 STRUCTURE DETAIL
557+85.00, 23.00 LT
TYPE J-8 MANHOLE WITH WEIR STRUCTURE
N.T.S.
SECTION B-B
8" CONC. WALL TOP EL 30.36
4'
24" PIPE (FL 23.97)
30" PIPE FL 26.87 (ASSUMED)
30" PIPE FL 26.87 (ASSUMED)
FROM S-202
FROM S-200
CONST. SIDEWALK
REVISIONS
DATE
DESCRIPTION
DATE
DESCRIPTION
PBSJ
Certificate of Authorization No. 24
Engineer of Record: Atty L. Wolfe P.E. #: 56756
462 South Keller Road Orlando, FL 32810 (407)647-7275
SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION
MARKHAM WOODS ROAD
GRAVITY WALL - REHABILITATION
DRAINAGE DETAILS
SHEET NO.
7

GENERAL NOTES:

1. CONSTRUCTION SPECIFICATIONS: FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2007.

2. GEOTECHNICAL REPORT:
DESIGN SHOWN IS BASED ON THE GEOTECHNICAL INVESTIGATION REPORT "REPORT OF ADDITIONAL SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION MARKHAM WOODS ROAD GRAVITY WALL EVALUATION - PHASE I", DATED 01/14/2009, AND SUPPLEMENTED BY LETTER DATED 04/07/2009 BY NODARSE & ASSOCIATES, INC. CONTRACTOR TO REQUEST REPORT AND LETTER FROM OWNER PRIOR TO BEGINNING WORK.

3. MATERIALS:
A. FLOWABLE FILL SHALL BE CEMENT TYPE I, F'C=125 PSI, MIN.
B. STRUCTURAL STEEL SHALL BE ASTM A709, GRADE 36.
C. WELDING SHALL BE PER ANSI/AASHTO/AWS BRIDGE WELDING CODE, 2002.
D. SOIL ANCHORS SHALL BE 1" Ø ASTM A722 HIGH STRENGTH STEEL BARS.
E. CORROSION PROTECTION IS REQUIRED ON ANCHOR BAR AND ANCHOR HEAD. USE AN EPOXY MASTIC HEAT SHRINK WRAP OR DUCTING AND GROUTING AT CONNECTION TO WALL, USE A COAL TAR EPOXY MASTIC COATING.
F. HELIX PILE SYSTEM, GALVANIZED PER ASTM A153.

4. DESIGN PARAMETERS:
A. THE SOIL ANCHOR ESTIMATED TRANSFER LOAD WAS TAKEN AS 1.5 KIP/FT. BASED ON AASHTO TABLE 5.7.6.2A WITH A FACTOR SAFETY OF 2.5. PERFORM LOAD TESTS PER SPECIFICATIONS SECTION 451.
B. HELIX PILE SYSTEM SHALL BE PROVIDED TO ACHIEVE AN ALLOWABLE LOAD OF 10 KIPS WITH TWO LOAD TESTS TO TWICE THE CAPACITY.

5. DESIGN SPECIFICATIONS:
A. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS IN CUSTOMARY US UNITS, FOURTH EDITION, 2007.
B. FDOT STRUCTURES MANUAL JANUARY 2008.
C. FDOT PLANS PREPARATION MANUAL - TOPIC NO. 625-00-007, JANUARY 2008.
D. DESIGN METHOD:
LOAD AND RESISTANCE FACTOR DESIGN (LRFD).

6. SUBMITTALS:
SEE SPECIFICATIONS SECTION 451. SUBMITTALS SHALL INCLUDE:
A. SOIL ANCHOR SYSTEM W/CORROSION PROTECTION AND LAYOUT PLAN.
B. HELIX PILE SYSTEM WITH LAYOUT PLAN.
C. MANUFACTURER'S DESIGN INSTALLATION, SPECIFICATION AND TESTING PROCEDURE DATA.
D. DESIGN CALCULATIONS AND DETAILS SHALL BE SIGNED AND SEALED BY A FLORIDA P.E.

7. MISCELLANEOUS:

A. EXISTING CONDITIONS
THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING CONDITION AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO THE ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS.

B. CONTRACTOR IS RESPONSIBLE FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION, ALL STRUCTURAL ELEMENTS OF THE PROJECT HAVE BEEN DESIGNED BY THE STRUCTURAL ENGINEER TO RESIST THE REQUIRED CODE VERTICAL AND LATERAL FORCES THAT COULD OCCUR IN THE FINAL COMPLETED WALL STRUCTURE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL REQUIRED BRACING DURING CONSTRUCTION TO MAINTAIN THE STABILITY AND SAFETY OF WALL DURING THE CONSTRUCTION PROCESS UNTIL ALL WORK IS COMPLETELY INSTALLED.

C. SITE OBSERVATION BY THE STRUCTURAL ENGINEER
THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE.

THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF PBS&J IS SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.

SUGGESTED SEQUENCE OF CONSTRUCTION:

1. VERIFY EXISTING CONDITIONS, INCLUDING LOCATION OF EXISTING VERTICAL HELIX ANCHORS.
2. INSTALL NEW HELIX VERTICAL ANCHORS AND LOAD TEST AS REQUIRED.
3. CONTRACTOR TO FIELD VERIFY GRAVITY WALL JOINT LOCATIONS AND INSTALL ANCHORS A MINIMUM OF 5'-0" FROM JOINT.
4. INSTALL NEW HORIZONTAL SOIL ANCHORS AND LOAD TEST AS REQUIRED.
5. DEMOLISH SIDEWALK, ALLOW FOR INSPECTION OF EXPOSED AREA.
6. REPLACE FILL AND CONCRETE SIDEWALK AS REQUIRED.
7. INSPECT HANDRAIL, REMOVE AND REPLACE TO MAKE PLUMB AND TO MAKE ANY REQUIRED REPAIRS.
8. GROUT FILL ALL VOIDS.
9. INSPECT GROUT FILL AREAS.
10. INSTALL FILTER FABRIC AND RUBBLE RIP-RAP AT TOE OF EXISTING GRAVITY WALL.

HORIZONTAL SOIL ANCHOR SCHEDULE

STATION	SPACING	DESIGN LOAD KIPS	BONDED LENGTH (FT.)	SOIL ANCHOR DIAMETER (IN)
556+00 TO 558+50	10'-0"	15	10'-0"	1.00

VERTICAL SOIL ANCHOR SCHEDULE *

STATION	SPACING	DESIGN LOAD KIPS	TYPE
556+00 TO 556+05	5'-0"		
556+15 TO 557+60	10'-0"		
557+60 TO 558+50	5'-0"	10	2⅞" HELIX ANCHOR

* SEE ROADWAY PLANS FOR LAYOUT.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	Names	Dates
Drawn by	DEW	04-09
Checked by	KTZ	04-09
Designed by	KTZ	04-09
Checked by	RK	04-09
Approved by	KEN ZAGERS	

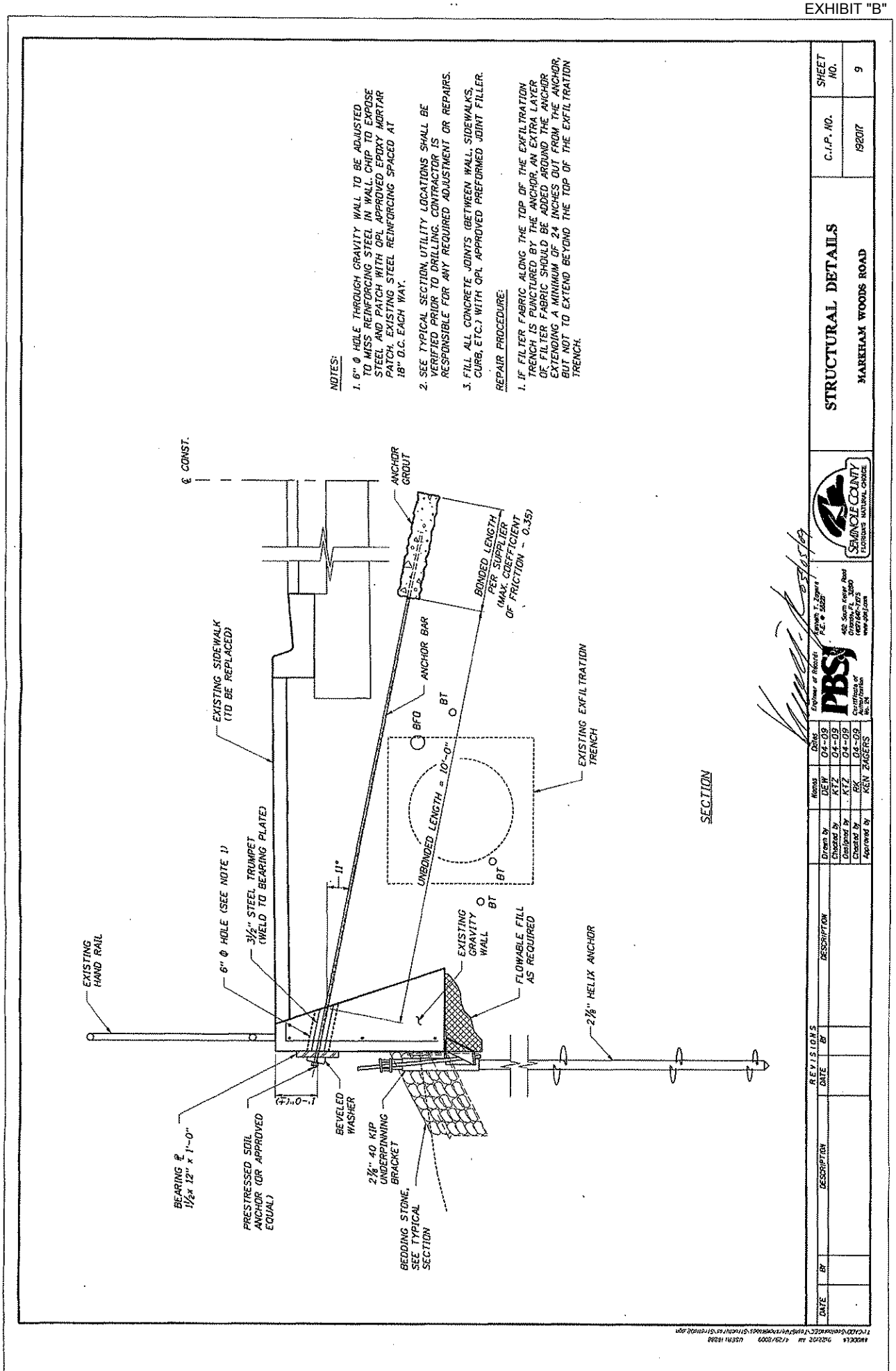
05/05/09

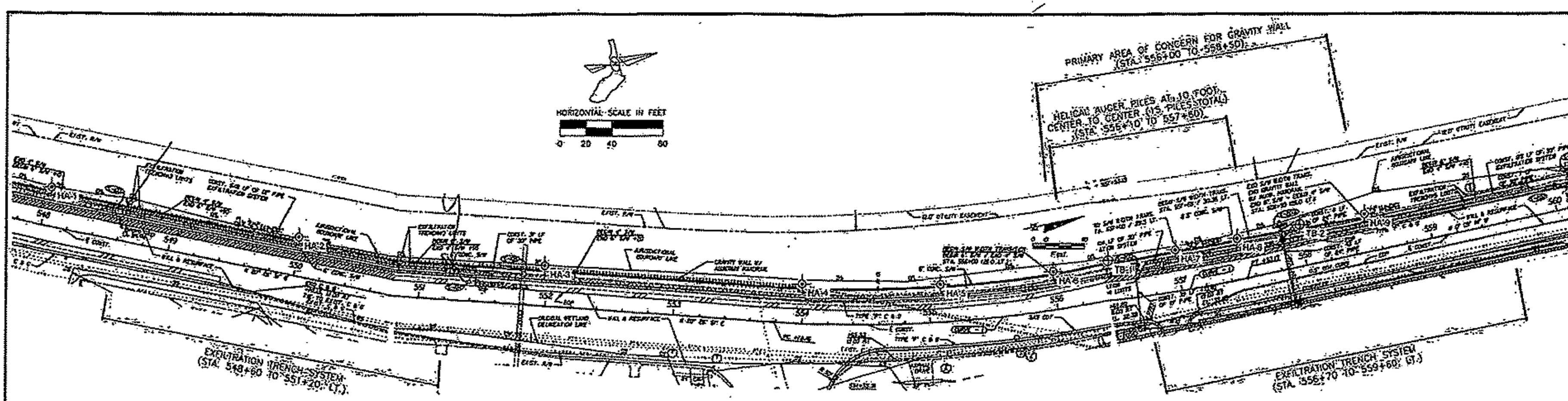
Engineer of Record
PBSJ
Certificate of Authorization No. 24
Kenneth T. Zagers P.E. # 58823
482 South Keller Road Orlando, FL 32810 (407) 647-7275 www.pbsj.com

SEMINOLE COUNTY FLORIDA'S NATURAL CHOICE

STRUCTURAL DETAILS
MARKHAM WOODS ROAD

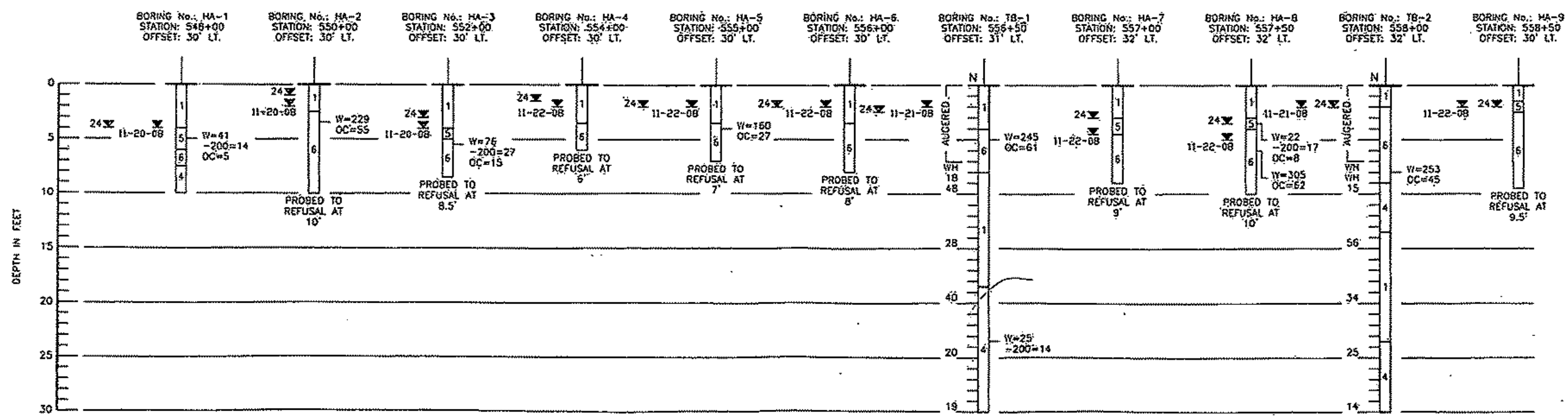
C.I.P. NO.	SHEET NO.
192017	8


NOTES:
1. 6" Ø HOLE THROUGH GRAVITY WALL TO BE ADJUSTED TO MISS REINFORCING STEEL IN WALL CHIP TO EXPOSE STEEL AND PATCH WITH DPL APPROVED EPOXY MORTAR PATCH. EXISTING STEEL REINFORCING SPACED AT 18" O.C. EACH WAY.
2. SEE TYPICAL SECTION, UTILITY LOCATIONS SHALL BE VERIFIED PRIOR TO DRILLING. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED ADJUSTMENT OR REPAIRS.
3. FILL ALL CONCRETE JOINTS (BETWEEN WALL, SIDEWALKS, CURB, ETC.) WITH DPL APPROVED PREFORMED JOINT FILLER.
REPAIR PROCEDURE:
1. IF FILTER FABRIC ALONG THE TOP OF THE EXFILTRATION TRENCH IS PUNCTURED BY THE ANCHOR, AN EXTRA LAYER OF FILTER FABRIC SHOULD BE ADDED AROUND THE ANCHOR EXTENDING A MINIMUM OF 24 INCHES OUT FROM THE ANCHOR, BUT NOT TO EXTEND BEYOND THE TOP OF THE EXFILTRATION TRENCH.
℄ CONST.
EXISTING SIDEWALK (TO BE REPLACED)
EXISTING HAND RAIL
6" Ø HOLE (SEE NOTE 1)
3½" STEEL TRUMPET (WELD TO BEARING PLATE)
11°
ANCHOR GROUT
BONDED LENGTH PER SUPPLIER (MAX. COEFFICIENT OF FRICTION - 0.35)
ANCHOR BAR
BFO
BT
UNBONDED LENGTH = 10'-0"
EXISTING EXFILTRATION TRENCH
EXISTING GRAVITY WALL
FLOWABLE FILL AS REQUIRED
2½" HELIX ANCHOR
BEARING ℄ 1½x 12" x 1'-0"
PRESTRESSED SOIL ANCHOR (OR APPROVED EQUAL)
BEVELED WASHER
2⅝" 40 KIP UNDERPINNING BRACKET
BEDDING STONE, SEE TYPICAL SECTION
SECTION
REVISIONS
DATE | BY | DESCRIPTION
DESCRIPTION | DATE | BY
Drawn by DEW 04-09
Checked by KTZ 04-09
Designed by KTZ 04-09
Checked by EK 04-09
Approved by KEN ZAGERS 04-09
PBSJ
Certificate of Authorization No. 24
Kenneth T. Zagers P.E. # 58229
402 South Kirkman Road Orlando, FL 32811 (407) 240-7233 www.pbsj.com
SEMINOLE COUNTY FLORIDA'S NATURAL CHOICE
STRUCTURAL DETAILS
MARKHAM WOODS ROAD
C.I.P. NO. 192017
SHEET NO. 9



LEGEND

1	GRAYISH-BROWN FINE SAND TO SLIGHTLY SILTY FINE SAND (SP)(SP-SM)
2	GRAY FINE SAND WITH ROCKS/CONCRETE DEBRIS (SP)
3	DARK BROWN SLIGHTLY SILTY FINE SAND, TRACE ORGANICS (SP-SM)
4	DARK GRAY AND BROWN SILTY FINE SAND (SM)
5	DARK BROWN SANDY TO SILTY ORGANICS/PEAT (PT)
6	DARK BROWN MUCK (PT)
(SP)	UNIFIED SOIL CLASSIFICATION GROUP SYMBOL AS DETERMINED BY VISUAL EXAMINATION
11-22-08	DEPTH TO GROUNDWATER LEVEL IN FEET WITH DATE OF READING
24	24 HOUR GROUNDWATER TABLE
N	STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT
W	NATURAL MOISTURE CONTENT (%)
-200	FINES PASSING No. 200 SIEVE (%)
OC	ORGANIC CONTENT (%)
	APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING
	APPROXIMATE LOCATION OF AUGER BORING



REVISIONS					
Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	MO	1-14-09
Checked by	EJ	1-14-09
Designed by		
Checked by		
Approved by	AVR SALLAM, P.E.	

NODARSE & ASSOCIATES, INC.
1675 LEE ROAD
WINTER PARK, FLORIDA 32789
(407) 740-6110
CERTIFICATE OF AUTHORIZATION No. 6174
AVR SALLAM, P.E. No. 67578

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
-	SEMINOLE	-

SHEET TITLE: REPORT OF AUGER AND SPT BORINGS

PROJECT NAME: MARKHAM WOODS ROAD GRAVITY WALL, SEMINOLE COUNTY, FLORIDA

SHEET No. 10

NODARSE and ASSOC. No. 01-05-0250-1198 FIGURE: 1

Markham Woods Road Gravity Wall Rehabilitation

Southland Construction, Inc.

172 West Fourth Street

Apopka, Fl 32703

Contact: Ben White/Danny Carr

Phone: (407)889-9844

Fax: (407)886-4348

Quote To:	Seminole County Public Works 520 West Lake Mary Blvd., Suite 200 Sanford, FL., 32773-7424	Job Name: Date of Plans:	Markham Woods-Gravity Wall Rehab 04/09
Phone: Fax:	(407)665-5674 (407)665-5789 ATTN: Mr. Joe Weston	Revision Date:	

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
101-1	MOBILIZATION	1.00	LS	16,750.00	16,750.00
102.-1	MAINTENANCE OF TRAFFIC	1.00	LS	13,992.40	13,992.40
104-12	STAKED TURBIDITY BARRIER	246.00	LF	10.15	2,496.90
110-1-1	CLEARING AND GRUBBING	1.00	LS	8,300.00	8,300.00
120-9	EARTHWORK	1.00	LS	2,400.00	2,400.00
121-70	FLOWABLE FILL	1.00	LS	3,600.00	3,600.00
425-2-73	MANHOLE (J-7)(PARTIAL)	1.00	EA	5,500.00	5,500.00
430-94-1	DESILT PIPE (0-24")	100.00	LF	2.00	200.00
430-94-2	DESILT PIPE (25"-36")	305.00	LF	3.50	1,067.50
515-2-102	RESET HANDRAIL	246.00	LF	18.00	4,428.00
522-1	SIDEWALK CONCRETE, 4" THICK	262.00	SY	33.60	8,803.20
530-74	BEDDING STONE	42.40	TN	80.00	3,392.00
575-1-1	SODDING (BAHIA)(CONTINGENCY)	100.00	SY	2.20	220.00
451-70	PRESTRESSED SOIL ANCHOR	26.00	EA	2,100.00	54,600.00
451-70-1	PRESTRESSED SOIL ANCHOR (PERFORMANCE TEST)	2.00	EA	4,100.00	8,200.00
451-70-2	PRESTRESSED SOIL ANCHOR (CREEP TEST)	1.00	EA	4,100.00	4,100.00
455-39	MINIPILE FOUNDATION SYSTEM (F&I)(HELIX ANCHOR)	34.00	EA	1,500.00	51,000.00
455-119-101	LOAD TEST STATIC	2.00	EA	5,700.00	11,400.00
GRAND TOTAL					**$200,450.00**

NOTES:

GENERAL NOTES & CONDITIONS: Markham Woods Road Gravity Wall Rehabilitation Project

1)Bond costs are included in proposal pricing.
2)No permits known or specified to be required for project, no permit costs included in proposal.
3)Owner to provide initial Control Points and all Survey information to SCI for project layout if required. Project/Construction Layout and As Builts by SCI per specifications.

4)QC (Geotechnical Testing) required is NOT included in proposal, to be provided by Owner per project specs.
5)All Maintenance of Traffic will be per FDOT Index 600 standards. MOT required to perform project will require lane closures during work hours and will be performed per FDOT standards.
6)Proposal considers all work to be done during daytime hours only and will require lane closures per plan notes (allowed only between 9:00 AM to 3:00 PM) and FDOT Standards.
7)Adjustment of existing utilities if required to be performed by utility owner(s) and is to be completed prior to construction or scheduled and coordinated with SCI to be completed during construction.
8)Proposal is based on Owner provided unit quantities and compensation shall be at unit prices for all work performed.
9)All work included in proposal that is included within the current 2007 Seminole County Continuous Contracts is proposed to be performed at or less than SCI contract unit prices for same. All work not covered or included under said contract is priced accordingly per project conditions and requirements.
10)Proposal based on removal and reinstallation/reuse of existing handrail only as specified. SCI and SCI subcontractors do not certify the suitability of any or all reuse/reinstallation of existing handrail. Handrail will be removed,packaged, and stored in a secure off site location until needed for reinstallation. Handrail that has been "torqued" due to wall strains and stresses and requiring replacement will be done so at direction of Engineer and at additional cost per the CC-1075 contract unit prices if applicable. Any handrail sections requiring or directed to be replaced due to new alignment of existing retaining wall will be replaced at additional cost as well.
11)Proposal based on soil anchors being installed utilizing an "overhang" method from the top of the existing sidewalk due to limited ROW and adjacent wetlands on project.
12)Proposal based on horizontal anchors being installed utilizing the helical anchors as opposed to grouted anchors as allowed in Engineer reports and methods allowed/permitted.
13)Proposal includes replacement of embankment material over existing exfiltration trench with select materials only and includes any repair to the existing filter fabric as specified.
14)Proposal based on existing sidewalk being allowed to be closed and remain closed for project duration or until restored. No temporary sidewalks or other pedestrian provisions are included or considered in proposal. If temporary sidewalks are required location and design to be provided and to be constructed at additional cost.
15)Prior to project commencement project will be videotaped and photographed to document existing project conditions. Costs for this work IS included in proposal.
16)For any additional or further information regarding this proposal please contact Ben White or Danny Carr at (407)889-9844.

SPECIAL NOTES & CONDITIONS

A)Southland proposes to complete this project in (50) Calendar Days from accepted NTP.
B)Southland can commence this project within -5- calendar days after award of project to SCI,of any preconstruction meeting,or any other formal notification to proceed.
C)All work to be performed per plans and details provided by PBS&J and Nodarse & Associates. Southland does not gurantee results will correct existing wall to true plumb or elevations desired. Southland does not warranty against any "cracking" or other fracturing of wall due to installation and stresses from soil anchors and pins. All work to be performed in accordance to engineering provided and under supervision of Engineers or Engineer representative.